REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has added new claims 11-16. Thus, claims 1-16 are now pending in the application. In response to the Office Action (Paper No. 3), Applicant respectfully submits the pending claims define patentable subject matter.

I.   Preliminary Matters

The Examiner is requested to indicate acceptance of the drawings filed November 20, 2000 in the next action.

II.   The Present Invention

The present invention is directed to a transmission method and apparatus for transmitting digital data to a mobile telephone, wherein the GPRS protocol is adapted to equipment used in GSM communications. As shown in Figure 1, the transmission apparatus comprises a first relay 1, which a base station control circuit (BSC) of a base station (BS) 3, receiving data messages via a transmission channel 11 from a transmitter 2 that are formatted in a first protocol (GPRS). A second relay 4, which is a radio transceiver (BTS), constituting a radio interface between the first relay, the BSC circuit 1, and a receiver (mobile telephone) 5. The BSC 1 includes a processor 6 implementing programs 7 for managing data communication between the BTS 4 and the mobile station 5. The BTS 4 receives over a limited data rate transmission channel 9 data which has already been formatted in the GSM protocol by the BSC 1. The BTS 4 includes a

digital-to-analog converter (DAC) 10, a buffer memory 15 (a rotating FIFO memory) having a write input and a read output (pointer) 17 and a decoder 19.

Accordingly, the BSC (first relay) 1 receives the data in a GPRS protocol from the transmitter 2, and transmits it to the BTS (second relay) 4 in a GMS protocol. The bus 9 is connected to the write input 16 and a control input 18 for controlling the DAC 10. The memory 15 stores messages of different ranks (0, I, II, ...) in various cells, wherein the messages are transmitted in the order of their ranking. The memory 15 is associated with the decoder 19 which is capable of receiving an instruction to retransmit a message that has previously been stored and transmitted. In particular, the decoder 19, upon decoding an instruction, can either change the read pointer 17 so that it rereads a particular message tin order to retransmitted it, or can rewrite the message behind other messages so that the message will be retransmitted subsequently.

III.   Prior Art Rejections

A.   Disclosure of Boetzel

Boetzel is directed to a method and apparatus for transmitting a continuous data stream in packetized form. As shown in Figure 1, a base station B communicably linked to an IDSN network and a cordless telecommunications terminal TEn. The base station B includes a cyclic buffer 1, read pointer temporary storage devices 2-1 to 2-8, and a transmission buffer 3. The terminal TEn includes a receiving buffer 13 and a cyclic buffer 11.

The cyclic buffer 1 of the base station B is utilized for temporary storage of data received from the IDSN network and has an associated write pointer S and a read pointer L. The pointers S and L are automatically incremented when data are written or read, and may be moved at any time to desired points within the cyclic buffer 1 in order to repeat the transmission of specific data. The read pointer temporary storage devices 2-1 to 2-8 store respective addresses at which the data to be transmitted are stored in the cyclic buffer.

In operation, the data received from the ISDN network is converted into a continuous data stream (64 kbits/s) and written with the write pointer S to the cyclic buffer 1. Once a specific amount of data has been written to the cyclic buffer 1, the stored data is read in units of 80 bytes via the read pointer. The transmission buffer 3 receives data read from the cyclic buffer 1 and prepares the received data in a double slot format for transmission to the terminal TEn. The double slot data is received by the terminal TEn and stored in the receiving buffer 13. The data read from the receiving buffer 13 is then stored in the cyclic buffer 11. When a predetermined amount of data is written to the cyclic buffer 11, the data is read from the cyclic buffer 11 continuously at a rate of 64 kbit/s.

B.   Analysis

Claims 1, 2, 4-7, 9 and 10 are rejected under 35 USC 102(e) as being anticipated by Boetzel (USP 6,377,541). Claims 3 and 8 are rejected under 35 USC 103(a) as being unpatentable over Boetzel in view of Hamalainen et al. (WO 99/09724; hereafter "Hamalainen"). Applicant respectfully submits that the claimed invention would not have been anticipated by or

render obvious in view of Boetzel, alone or in combination with Hamalainen, because the cited references do not teach or suggest all of the features of independent claims 1 and 6.

Claims 1 and 6 require a limited data rate transmission channel interconnecting first and second relays. Although the Examiner appears to be broadly construing the claimed relays as reading on the transmission and cyclic buffers of the base station of Boetzel, Applicant respectfully that it is quite clear that Boeztel does not disclose the claimed limited rate transmission channel between the relays. Moreover, Boetzel does not teach or suggest the data messages formatted in the second protocol include data messages of different lengths or the data messages of different lengths are transmitted over the limited data rate transmission channel in an asynchronous mode, as claimed. Rather, Boetzel simply discloses the data received by the cyclic buffer is stored in a double slot format and transmitted to the transmission buffer where it is prepared for transmission in the double slot format to the terminal.

By this Amendment, Applicant has added new claims 11-16 to further define the claimed invention.

With regards to new dependent claim 11, Applicant submits claim 11 should be allowable for the same reasons as claim 1 and the cited references do not teach or suggest the subject matter of claim 11 (see page 13, lines 13-19, for example).

With regards to new independent claim 12, Applicant respectfully submits the cited references do not teach or suggest the claimed limited rate transmission channel between the relays, and the data messages formatted in the second protocol include data messages having a

length different from a length of a transmission window for transmission in the synchronous mode over the limited data rate transmission channel, as claimed.

With regards to new claims 13 -15, Applicant respectfully submits the cited references do not teach or suggest the claimed means for transmitting the data messages formatted in the second protocol over a limited data transmission rate channel in an asynchronous mode, wherein the data messages formatted in the second protocol include data messages of different lengths.

With regards to new claim 16, Applicant respectfully submits the cited references do not teach or suggest the claimed means for receiving data messages transmitted in an asynchronous mode over a limited data rate transmission channel, wherein the data messages include data messages of different lengths.

In view of the above, Applicant respectfully submits that claim 1-16 should be allowable because the cited references do not teach or suggest all of the features of the claims.

IV.   Conclusion

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/715,171

The USPTO is directed and authorized to charge all required fees, except for the Issue

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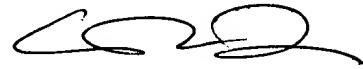
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